

CLAIM(S)

1. Inductive sensor for determining the position of a body which can move with respect to a fixed housing, characterized in that the movable body has an inductive transmission element, which generates an alternating magnetic field extending over a limited region, some or all of the flux of this alternating field permeating at least one conductor loop connected to the housing and extending over the measurement length, which loop has a feed line extending along the measurement distance and a return line, which is designed so that its path alternates at regular intervals in such a way that only a small amount of the flux of the alternating field of the transmission element permeates it or so that most of the flux of the alternating field permeates it; and in that the areas permeated by large amounts of flux have a width which is proportional to the expected output value associated with the desired position value, the output voltage of these areas being sent to an output.

2. Inductive sensor according to Claim 1, characterized in that a conductor loop is provided, which includes the entire alternating field generated by the transmission element, the output voltage of this loop being used as a reference for the voltage generated by the conductor loop (reference loop).

3. Inductive sensor according to Claims 1 and 2, characterized in that at least one additional conductor loop is provided, which is offset from the first, and in that its output voltage is added to the output voltage of the first conductor loop.

4. Inductive sensor according to Claims 1 and 2, characterized in that at least one additional conductor loop with the opposite pitch is provided, which is offset with respect to the first, and in that the measurement value is the difference between the two output voltages.



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5. Inductive sensor according to one of Claims 1-4, characterized in that several independent conductor loops for obtaining measurement values (measuring loops) are provided.

6. Inductive sensor according to one of Claims 1-5, characterized in that a core of high permeability for generating an alternating field is designed in such a way that the rise or fall of the alternating field across the width of an air gap formed by the core extends over a length in the measuring direction which corresponds to the pitch of the measuring loop(s), and in that the effective length corresponds to twice the pitch of the measuring loop or to a whole-number multiple thereof.

7. Inductive sensor according to Claim 1-5, characterized in that a core of high permeability for generating an alternating field is designed in such a way that the length of the air gap formed by the core over the width of the core and its pole surfaces have a shape such that the course of the induction in the measuring direction rises or falls in such a way that, when a measuring head containing the core passes over, the induction averaged over the width of the conductor loop along a line perpendicular to the measuring distance rises or falls in an approximately linear fashion over a distance equal to the pitch of the measuring loop.

8. Inductive sensor according to one of Claims 1-7, characterized in that the measuring or reference loop has a circular path, and in that the measuring head is mounted with freedom of rotation, so that the assembly can be used to measure angles.

9. Inductive sensor according to Claim 8, characterized in that at least two measuring loops are provided, which extend over an angle of 360° and yield associated measurement values over this measuring angle, the ratio of these



values to each other making it possible to arrive at a unique determination of the measurement angle.

10. Inductive sensor according to Claim 9, characterized in that the output voltages of two or more measuring loops approximate out-of-phase sine functions.

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